ELSEVIER

Journal of Hydrology 272 (2003) 291–292

Journal of Hydrology

www.elsevier.com/locate/jhydrol

Contents of Volume 272

Vol. 272 Nos. 1–4 **March 10, 2003**

Special Issue: Soil Hydrological Properties and Processes and their variability in Space and Time

Preface 1
Generalized Richards' equation to simulate water transport in unsaturated soils
Yakov Pachepsky, Dennis Timlin and Walter Rawls 3

Fundamental Theory of Water and Solute Transport in Porous Media

Review and comparison of models for describing non-equilibrium and preferential flow and transport in the vadose zone
Jirka Šimůnek, Nick J. Jarvis, M.Th. van Genuchten and Annemieke Gärdenäs 14
Linking hydraulic conductivity and tortuosity parameters to pore space geometry and pore-size distribution
R.W. Vervoort and S.R. Cattle 36
Hydraulic functions for swelling soils: pore scale considerations
Markus Tuller and Dani Or 50
Time-dependent hydraulic resistance of the soil crust: Henry's law
Miroslav Kutílek 72
Influence of porous medium and NAPL distribution heterogeneities on partitioning inter-well tracer tests: a laboratory investigation
Marc Jalbert, Jacob H. Dane and Laurent Bahaminyakamwe 79
Moving through scales of flow and transport in soil
H.-J. Vogel and K. Roth 95

Mass and Heat Transport in Field Soils

Heavy metal displacement in chelate-irrigated soil during phytoremediation
F. Madrid, M.S. Liphadzi and M.B. Kirkham 107
Quality of underground water and its contribution towards selenium enrichment of the soil–plant system for a seleniferous region of northwest India
K.S. Dhillon and S.K. Dhillon 120
Use of limited soil property data and modeling to estimate root zone soil water content
Patrick J. Starks, Gary C. Heathman, Lajpat R. Ahuja and Liwang Ma. 131
Drainage networks in soils. A concept to describe bypass-flow pathways
M. Deurer, S.R. Green, B.E. Clothier, J. Böttcher and W.H.M. Duijnisveld 148
Calculation of drain spacings for optimal rainstorm flood control
Eilert Wiskow and Rienk R. van der Ploeg 163
Tracing ^{15}N through landscapes: potential uses and precautions
A. Bedard-Haughn, J.W. van Groenigen and C. van Kessel 175
Salinity and the discharge of salts from catchments in Australia
A.J. Peck and Tom Hatton 191
Measurement of sated hydraulic conductivity of surface soil in the field with a small-plot sprinkling infiltrometer
K.A. Suleiman and D. Swartzendruber 203

Application of Regionalized Theory, Geostatistical Methods, and State-space Analysis at the Field Scale

Spatial variability of the effective retardation factor in an unsaturated field soil
Mark J. Thomasson and Peter J. Wierenga 213
Sugarcane production evaluated by the state-space approach
L.C. Timm, K. Reichardt, J.C.M. Oliveira, F.A.M. Cassaro, T.T. Tominaga, O.O.S. Bacchi and D. Dourado-Neto. 226

PII: S0022-1694(03)00012-X

Spatial and temporal changes of soil salinity in a cotton field irrigated with low-quality water
Mahmut Cetin and Cevat Kirda 238
Predicting yield of barley across a landscape: a state-space modeling approach
Ole Wendroth, Hannes I. Reuter and K. Christian Kersebaum 250
Stochastic soil moisture dynamics along a hillslope
L. Ridolfi, P. D'Odorico, A. Porporato and I. Rodriguez-Iturbe 264
Multiresolution analysis of data on electrical conductivity of soil using wavelets
R.M. Lark, S.R. Kaffka and D.L. Corwin 276